EU-US Task Force on Biotechnology Research

EU-US Symposium on Understanding Nutrition-Related Consumer Behavior: Strategies to Promote a Lifetime of Healthy Food Choices

Ghent, Belgium

May 21-22, 2013

COOPERATION

NIH National Institutes of Health
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EU-US Symposium on Understanding Nutrition-Related Consumer Behavior: Strategies to Promote a Lifetime of Healthy Food Choices

This symposium is being conducted under the auspices of

the EU-US Task Force on Biotechnology Research

(http://ec.europa.eu/research/biotechnology/eu-us-task-force/index_en.cfm)

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INTRODUCTION

Established 20 years ago, the EU-US Task Force on Biotechnology research aims to promote information exchange and coordination in biotechnology research between programmes funded by the European Commission and the US Government funding agencies (USDA, DOE, NIH, NSF and NOAA). In view of the common challenge facing Europe and the United States in preventing and managing obesity and its impacts on public health, well-being and the economy, the EC-US Task Force on Biotechnology Research has also encouraged information exchange and collaboration on obesity research.

The obesity continues to be a growing threat to health throughout the world. The rise in obesity prevalence has resulted in an increase in the myriad serious medical problems associated with excess body fatness. Obesity is associated with an increased risk for type 2 diabetes, cardiovascular diseases (including hypertension, stroke and heart attacks), and certain forms of cancer. Obesity also significantly affects quality of life, including mobility, physical and psychological functioning, and ability to carry out activities of daily living. In addition, the increasing health care costs attributable to obesity-related disorders play a significant role in the increase in health care costs and in lost work productivity. A wide range of factors such as genes, environment and education are known to influence weight gain and the associated lifestyle behaviours that are associated with increased susceptibility to obesity. Identifying and understanding the independent and interacting biological, behavioural, social, and environmental correlates and determinants of obesity and how these differ between groups is crucial to help identify new targets for intervention at the individual, community, and population levels.

This EU-US symposium on “Understanding Nutrition-Related Consumer Behavior: Strategies to Promote a Lifetime of Healthy Food Choices” will highlight the state of the science and identify key research opportunities related to the determinants of healthy food choices and nutrition-related purchasing behaviours in the context of other factors such as activity and environment that influence decision making. The emphasis will be on areas of research that could significantly benefit from EU-US partnership between academia, government, the food and beverage industry and other partners.

ORGANISING COMMITTEE MEMBERS

Dr. Susan Czajkowski, - Chair-, National Institutes of Health/NHLBI
Dr. Christine Hunter, National Institutes of Health/NIDDK
Dr Van Hubbard, National Institutes of Health
Dr. Susan Johnson, University of Colorado Denver Anschutz Medical Campus
Dr. Wendy Johnson-Askew, Nestle
Dr. Mary Story, University of Minnesota

Isabelle de Froidmont-Görtz European Commission
Prof Marion Hetherington University of Leeds
Prof. Hans van Trijp, Wageningen University


EU-US Task Force on Biotechnology Research

EU-US Symposium on Understanding Nutrition-Related Consumer Behavior: Strategies to Promote a Lifetime of Healthy Food Choices

Room Rector Vermeylen – 2nd floor Het Pand
Ghent, Belgium
May 21-22, 2013

Organizers:
National Institutes of Health
European Commission
Foundation of the National Institutes of Health

AGENDA

Background: Within the US-EC Task Force on Biotechnology Research there has been a focus on obesity and nutritional sciences with a specific aim to identify opportunities that might benefit from transatlantic cooperation among the public and private sectors through dialogue and collaborations.

Meeting goals & objectives: The purpose of this pre-conference symposium is to highlight the state of the science and identify key research opportunities related to the determinants of healthy food choices and nutrition-related purchasing behaviors. The emphasis will be on areas of research that could significantly benefit from US-EU partnerships between academia, government, and the food and beverage industry. Speakers and delegates will:

- ◊ consider research evidence concerning the determinants of eating behaviors throughout the lifespan, developmentally from infancy through adulthood, across diverse populations, and including both individual-level influences as well as broader cultural, environmental and policy-related influences
- ◊ identify promising individual, environmental and policy interventions aimed at promoting sustained healthy food choices that can be broadly implemented
- ◊ identify key areas of research for future funding, including specific research questions and associated challenges, as well as opportunities for international collaboration including partnerships between academia, government and industry

21 May 2013

Room Rector Vermeylen – 2nd floor Het Pand

11:30 a.m. **Sandwich lunch (Kapittelroom - ground floor)**

12:30 p.m. **Welcome & Introductory Comments**

Moderators: Prof. Marion Hetherington, University of Leeds and Dr. Susan Johnson, University of Colorado Denver Anschutz Medical Campus

Dr. Van Hubbard, National Institutes of Health
Isabelle de Froidmont-Görtz, European Commission

Objective: To provide a brief overview of what has been done in the US and EU so far in terms of policy and strategies in this area and explain how the US and EU see the future in order to set the ground for discussion.

1:00 p.m. **Keynote address**

Prof. Klaus Grunert, Department of Business Administration, Aarhus University, Denmark

Objective: To provide a review in the field of nutrition, consumer behaviour and determinants of food choices to prevent obesity and related diseases and to help the consumers to adopt healthier lifestyles.

1:45 p.m. **Session 1: Impact of the early environment on the development of eating behaviors across the lifespan: What are the promoters of healthy dietary behaviors?**

Moderators: Dr. Susan Johnson, University of Colorado Denver Anschutz Medical Campus and Prof. Marion Hetherington, University of Leeds

Objective: To examine research that identifies early life experiences important in shaping food choice and eating behavior to enable the development of effective and sustainable family, school-based and community interventions to promote healthy eating.

Talk 1: What are the most critical periods, feeding practices (e.g., introduction of foods including timing, types of foods, etc.), lifestyles and environmental influences on young children's food acceptance, intake patterns and future eating habits?
Dr. Sylvie Issanchou, Institut National de la Recherche Agronomique (INRA)

Talk 2: How does the intrauterine environment, early infant and childhood feeding experiences shape taste preferences and dietary behaviors during adolescence and adulthood?
Dr. Jennifer Savage Williams, The Pennsylvania State University

Talk 3: What are the most effective strategies for parents & families to use to form healthy habits and modify unhealthy habits in infants and young children?
Dr. Jean-Michel Borys, MD, Director of the EEN, Director of the Fleurbaix Laventie Ville Santé study & Co-founder/Co-director of the EPODE programme & EPODE European Network

Talk 4: What do we know about the role of caregiver characteristics, skills & practices in shaping children's food acceptance and intake patterns? What are the key motivations/factors within families that hamper adoption of healthier eating behavior?
Dr. Kathleen Reidy, Head, Nutrition Science for Global Meals & Drinks, Nestle Infant Nutrition

Discussion

3:30 p.m. **Coffee Break** (Kapittelroom - ground floor)

4:00 p.m. **Session 2: Individual-level determinants of food selection and food purchasing behavior Moderators:** Dr. Wendy Johnson-Askew, Nestle and Prof. Hans van Trijp, Wageningen University

Objective: To describe research on how individuals perceive and make decisions about food and nutrition, become and remain motivated to make healthy food choices, and how and by whom nutritional information and healthy eating strategies are effectively communicated.

Talk 1: What are the main driving factors for food choice & their interactions and how can we shift the drivers to potentially alter consumer behavior and preferences (e.g., how to shift food selection to focus on health as well as taste)?
Dr. Liesbeth Zandtra, Unilever

Talk 2: What is the role and relative importance of biological determinants in consumers' food choice, including brain functions and genomics?
Dr. Susan Carnell, Columbia University

Talk 3: Are incentives, behavioral contracts, and behavioral economics-based approaches useful for promoting robust and sustainable nutrition-related behavior change?
Dr. David Just, Cornell University

Talk 4: How can we improve consumer understanding of nutritional concepts such as health schemes (e.g. pyramids etc.), health claims, labeling?
Prof. Klaus Grunert, Department of Business Administration, Aarhus University, Denmark

Discussion

5:45 p.m. **Summary of the day's discussions**

Prof. Marion Hetherington, University of Leeds
Dr. Susan Johnson, University of Colorado Denver Anschutz Medical Campus
6:00 p.m. **Aperitif** (Kapittelroom - ground floor)

22 MAY 2013

Room Rector Vermeylen – 2nd floor Het Pand

8:15 a.m. **Welcome & introductory comments**
Dr. Susan Johnson, University of Colorado Denver - Anschutz Medical Campus
Prof. Marion Hetherington, University of Leeds

8:30 a.m. **Session 3: Sociocultural and environmental influences on food selection and consumption patterns**
Moderators: Dr. Maha Tahiri, General Mills and Dr. Sylvie Issanchou, Institut National de la Recherche Agronomique (INRA)

Objective: To review evidence on how social, cultural, organizational and built environments influence individuals' choices concerning food and nutrition, and to identify how these environments can be altered to promote healthier lifetime food choices.

Talk 1: How does the meaning and importance of food across diverse cultures drive nutrition-related attitudes and potential for dietary behavior change? How can adoption of healthy lifestyles be promoted and sustained in low resource communities (role/influence of access, culture, SES, etc.)?
Dr. Angela Odoms-Young, University of Illinois at Chicago

Talk 2: What are the critical policy or organizational factors that result in a sustained positive change in individual eating behavior?
Prof. Mario Mazzocchi, University of Bologna

Talk 3: How does media (e.g. social media, advertising) influence eating and activity behaviors (differences by subgroups or across the lifespan)?
Dr. Sonya Grier, American University

Talk 4: How does nutrition information on food labels affect dietary choices, consumers habits and food related issues?
Prof. Hans Van Trijp, Wageningen University

Discussion

10:15 a.m. Coffee Break

10:30 a.m. Breakout groups – Parallel sessions

Group 1: Impact of the early environment on the development of eating behaviors across the lifespan: What are the promoters of healthy dietary behaviors? (Room Rector Vermeylen – 2nd floor Het Pand)

Group 2: Individual-level determinants of food selection and food purchasing behavior (Room Rector Gillis – 2nd floor Het Pand, entrance via Library)

Group 3: Sociocultural and environmental influences on food selection and consumption patterns (Room Refter – ground floor Het Pand)

12:00 p.m. Panel of academic, government and industry representatives to discuss gaps in research and opportunities for collaborative activities to address gaps
(Room Rector Vermeylen – 2nd floor Het Pand)

1:00 p.m. Closing remarks and next steps
Moderators: Isabelle de Froidmont-Görtz, European Commission and
Dr. Van Hubbard, National Institutes of Health

Prof. Marion Hetherington, University of Leeds
Dr. Susan Johnson, University of Colorado Denver Anschutz Medical Campus

1:15 p.m. Sandwich lunch (Kapittelroom - ground floor)

Abstracts and biographies

Dr Jean-Michel Borys
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Abstract

What are the most effective strategies for parents & families to use to form healthy habits and modify unhealthy habits in infants and young children?

The community based intervention (CBI) approach is focused on the modification of habits. A habit is defined as a behavioural pattern that is relatively stable over time. Only long-term unhealthy behaviours will have adverse effects on health, and only stable healthy behaviours will benefit health. While living conditions always have some stable characteristics, behavioral patterns will adapt to environmental characteristics. The relevant situational features may be physical (e.g. The availability of a pleasant walking route; the availability of fast food), social (e.g. Social models; social norms; social pressure), motivational (e.g. The taste of food; the cost of physical activity in terms of effort and time) or cultural (e.g. Tradition of a family meal; spending leisure time watching tv; acceptability of breast feeding).

It has now been convincingly demonstrated that we live in an “obesogenic” environment , and that non-western populations are rapidly creating similar environments. An obesogenic environment typically elicits the consumption of too much energy and discourages physical activity. So environment needs to be changed. It is often seen in traditional prevention efforts that after initial changes, there is a rapid return to earlier behavioural patterns . In addition, when populations migrate to a new environment, their habits change in a predictable way to adapt to the new situational characteristics . Therefore, we have to change the environment to make healthy behaviours the most natural, easy and rewarding response and this includes: physical environment (e.g. the attractiveness of park areas), cost and benefit of behaviour (e.g. the price of food), social norms associated with being physically active, etc. To achieve most of these changes, it is necessary to collaborate with institutions or actors that have control over these environmental factors .

The Community based approach to change unhealthy habits in infants and families

Over the past decade, several studies have demonstrated that the prevention of obesity in children is possible through community-based interventions, to improve eating and physical activity habits. Increasing evidence shows that the most successful interventions are multicomponent, adapted to the local context (cultural and environmental), using the existing local structures and networks of a community, building partnerships and involving the participants in the planning, implementation and evaluation stages.

A better prevention at a community level must be implemented for at least three reasons

• the first one is the need for sustainable involvement of local stakeholders and a sustainable change in the population’s practices, where many national prevention campaigns already give a great support ;

• the second one is to be able to share and implement experience and best practice at local level thanks to sustainable funds, local political endorsement and continuous monitoring and evaluation, where many initiatives are set up punctually with the support of local actors;

• the third one is to build capacity at community level in the long-term and to develop adapted tools and actions, where they already exist but remain overly confidential.

The multifactorial strategy can use different social marketing techniques. In any event, it is necessary for the techniques to be seamless and in the correct context, taking into account culture and socio-economic status.

Communication and evaluation are two other basic pillars of these initiatives. The strategy is based on evidence but also on experience. Activities are joined-up, renewable and exportable, and contribute to reducing health inequalities. Activities take place in built-up and non-built-up areas (town-planning, traffic systems, food provision) and go hand in hand with information and case studies. It concerns both general and targeted activities. Activities are multifactorial and permanent.

An important element of CBP is the participation of the individual. By participating in the programme, the programme is more likely to succeed and ensure sustainability within a given context and within resources . Through participation people are enabled to choose healthier alternatives. They are given the means and opportunities to do this and are made active partners in the process of change and its outcomes ; and it is also important in the development of a sense of ownership of the programme . The rationale for CBP is the notion that individuals cannot be considered separately from their social environment and context. Therefore, CBP incorporate multiple interventions extending beyond the individual level; in doing so, they seem to have more success in changing behaviours than those who do not . Other important elements of CBP are empowerment, social network approach, capacity-building, multi-sectoral collaboration and a mix of interventions .

A social network offers social support (emotional, instrumental and informational), it influences through social norms, and presents role models and social comparison principles. The diffusion of ideas, knowledge and new norms throughout these networks is considered to be important to achieve community change as well as using ambassadors that can spread the message and motivate people to participate to the community life and the “healthy activities” proposed by the Health promotion programme. Involving parents and their children together and enhancing peer-to-peer dynamic is also a key to success.

These programmes include the participation of a multitude of stakeholders and bring a common language shared by all . In particular, it promotes their involvement at central level (ministries, health groups, NGOs, and private partners) and local level (political leaders, health professionals, families, teachers, local NGOs, and the local business community) .

CBP requires policymakers and legislators to influence the law, the use of methodological frameworks, the participation of decision-makers and politicians. The involvement of local stakeholders must take place at the policy stage and programmes must integrate existing stakeholders at a local and national level. Local government has a leading role: town council can assume leadership in the realization of health promotion projects or interventions in different ways and be able to allocate specific budget for activities and evaluation plan

The process involves participation of key stakeholder groups such as community leaders, from the implementation of a pre-designed intervention in a local setting to deep community participation in designing and implementing the intervention. By listening and learning from these populations, it is ensured that the interventions address their needs.

EPODE (Ensemble Prévenons l’Obésité des Enfants ei. Let’s prevent childhood obesity together) programme started 20 years ago with a long-term and whole population approach nutrition education programme. Results indicates that this community based intervention programme, in fact, did reduced childhood overweight, with a substantial decrease in the prevalence. The EPODE methodology is broadly recognised by the international scientific,

institutional, political and corporate communities as an innovative methodology to manage joint, multiple stakeholder commitments at all levels in tackling childhood obesity . EPHE (EPODE for the Promotion of Health Equity) is a program granted by the European Commission (DG SANCO) to evaluate the added value of the implementation of EPODE methodology for the reduction of health inequalities (through diet and physical activity) and change of unhealthy habits in deprived populations.

Short CV

Jean-Michel BORYS is a medical doctor, specialised in Endocrinology, Metabolic Diseases and Nutrition. He was the promoter and manager of “Fleurbaix Laventie Ville Santé Study”, a community-based intervention aimed at promoting a healthier lifestyle in Northern France (1992-2004). He then founded EPODE in 2004 and the EPODE European Network in 2008. He is since April 2011, general secretary of the EPODE INTERNATIONAL NETWORK. He has been an expert member in ANAES (National Agency for Health Evaluation and Accreditation) participating in the working group on “childhood obesity management recommendations”. He is a member of scientific associations including the American Diabetes Association, the American Heart Association and the European Association for Study of Diabetes. He has written and published several books and relevant publications in the field of obesity prevention, diabetes, cardio vascular diseases and public health. He has a medical practice (diabetes and obesity) and is the scientific director of Proteines’ Group, health and consulting agency. His last book published is “Preventing Childhood Obesity, Epode European Network recommendations” (Ed Lavoisier, 2011).

Susan Carnell PhD
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Abstract

What is the role and relative importance of biological determinants in consumers' food choice, including brain function and genomics?

We live in a world full of opportunities to eat highly calorific, palatable foods in vast quantities. Correspondingly, population overweight and obesity rates are higher than a few decades ago. However, even in today's food environment, not all of us eat to excess and become overweight or obese. One explanation for this could be biologically-influenced individual differences in our behavior around food.

Genomics. We know from twin studies in adults and children that body weight remains highly heritable, even in the modern 'obesogenic' environment. Studies using psychometric measures and behavioral tests also reveal significant heritability for indices of appetite, and eating disorder-related behaviors, as well as for preferences for certain tastes and foods. Progress is also being made in identifying the actual genes contributing to genetic influence on food intake. For example, polymorphisms on FTO and MC4R, two of the first common variants to be associated with obesity, have now been associated with a number of eating behaviors, and variations on genes known to influence dopamine function or bitter sensitivity have also been associated with eating behavior and weight. Genes do not equal 'fate', however – the environment seems to be crucial in modifying their effects. For example, there is now a substantial body of evidence suggesting that lifestyle factors (e.g. diet, exercise) interact with FTO in determining the expression of overweight.

Brain function. Neuroimaging studies examining responses to food pictures in lean and obese adults and children are now beginning to coalesce in identifying functional irregularities in a range of regions implicated in reward, emotion and memory, homeostatic regulation of intake, sensory and motor processing, and self-regulation, which could underlie the differences in food choice and intake observed in these populations. Several recent studies have also specifically examined responses to food and non-food logos in lead and obese children, finding that obese (vs. lean) children show relatively less activation of frontal regions associated with cognitive control in response to food logos. Studies examining precisely defined behavioural endophenotypes (e.g. external eating, food addiction) promise to teach us more about the specific neural networks that might drive individual differences in responses to the food environment, and contribute to the umbrella phenotype of body weight. However, longitudinal studies in children and adolescents are needed to illuminate whether the identified patterns of activation predict long-term eating behavior and weight gain.

Together, the above insights may help us develop targeted biobehavioral interventions to increase healthy eating behaviors. They also suggest we

should educate adults and parents that we all have different biologically-mediated responses towards food and food cues, and therefore need to exert different degrees of conscious control over our immediate eating environments. Perhaps most importantly, they argue in favor of efforts to increase the quality of the wider food environment in order to make healthy choices easier for everyone, especially those at increased biobehavioral risk for excessive intake of less healthy foods.

Short CV

Susan Carnell is a research associate at the New York Obesity Nutrition Research Center at St. Luke's Hospital, Columbia University. She received her BA in Experimental Psychology from the University of Oxford and completed her PhD on parental feeding style and children's eating behavior at University College London. She was then awarded an ESRC/MRC Interdisciplinary Post-doctoral Research Fellowship, in which she used behavioral and genetic data from a nationwide study of twin children to examine genetic and environmental influences on appetite and obesity. In 2007 she moved to the New York Obesity Nutrition Research Center to investigate neuroendocrine influences on eating behavior and weight. She currently holds a K99/R00 Pathway to Independence award from the NIH to examine fMRI responses to food cues in obese and lean adolescents at high and low familial or genetic risk of obesity. She is also investigating brain and gut hormone responses to stress and food cues in obese and lean adults with and without Binge Eating Disorder. Susan enjoys communicating the science of eating behavior to the public and has a blog on the Psychology Today magazine website called Bad Appetite (http://blogs.psychologytoday.com/blog/bad-appetite/).

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Abstract

Research priorities for a safe and healthy diet: Horizon 2020

The alarming figures on obesity have led national governments and the European Commission to devote an increasing level of resources to extend existing initiatives or launch new actions designed to reverse the obesity trend. Many actions are already in place to promote healthy and sustainable eating at all levels, from European to local level. However, the obesity issue continue to increase indicating that there is a need to further refine and improve these actions. Focused and targeted research is needed both on the effectiveness of particular measures or interventions as well as on how to best implement them. There is also a need for developing new transdisciplinary approaches. The integration of social sciences and humanities (e.g. consumer behaviour research) with nutrition and biomedical research is essential for the development of new solutions to fight against obesity. The research and innovation in Horizon 2020 will ensure to have the critical mass of resources needed to make a significant impact on this specific societal and health challenges. Combating obesity will require long term multiple strategies to be put in place and the combined efforts of many sectors. The active participation of many stakeholders (including governments, researchers, health professionals, retailers, consumer representatives and the media as well as the food industry) is necessary to efficiently

Short CV

Isabelle de Froidmont-Görtz is currently Scientific Officer in the unit Food, Health and Well-being in the European Commission's Directorate General for research and Innovation. She is working in the area of nutrition and food-related diseases. She holds a degree in agronomic engineering - Faculté Agronomique de Gembloux, Belgium.

She started her professional career as a research assistant in forensic science at the Laboratories R. Debré. She joined the European Commission in 1991, in the Agriculture Directorate General in the unit of legislation relating to animal nutrition. She moved to the Research Directorate General in 1994 as a Scientific Officer in the unit "Measurement & Testing". She was working in the area of food safety, agriculture and fight against fraud.

Her precedent post was administrator at the Food and Veterinary Office (Directorate General Health and Consumer Protection) in Dublin. Her duties included the coordination of the follow-up of inspections to develop strategy in the area of food safety, animal health, phytosanitary concerns and animal welfare.

address the problem. The Joint Programming Initiative 'A healthy diet for healthy life', the European Technology Platform "Food for life" and other EU initiatives will help public and private sectors to pursue common visions and set up a strategic research agenda in the domain of food and health in order to reduce the prevalence of diet-related chronic diseases.

As part of such a complementary multi-level strategy, this EU-US symposium in the framework of EU–US Task Force on Biotechnology Research will identify needs for future research where transatlantic collaboration will be beneficial and will contribute to the development of tools and knowledge to better understand the determinants of healthy food choices and nutrition –related purchasing behaviours in order to ensure an effective effort towards prevention.

Sonya A. Grier
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Abstract

What's in the box? Marketing and Media Influences on Eating Behavior

Marketing, and the media used to deliver it, are important environmental influences on eating behavior. A diverse array of media is used to implement marketing strategies directed towards the general population and specific sub-segments. Digital media such as internet websites, social media and mobile phones are increasingly ubiquitous, and complement traditional media such as television, radio and print. The diverse media channels provide a platform for integrated marketing tools and techniques to more precisely target particular groups to shape attitudes, norms and behavior towards foods and beverages.

This presentation discusses how marketing and media influence the foods and beverages that people purchase and consume, as well as how much and how often they purchase and consume them. Specific attention is paid to ways in which the influence of marketing and media may differ among important subgroups defined by age and ethnicity. The diverse approaches used to influence eating behavior among various segments are described, along with relevant research findings. Implications for research aimed at understanding marketing and media as determinants of healthy food choices and nutrition-related consumption behaviors are discussed with an emphasis on identifying areas that might benefit from transatlantic cooperation and collaboration.

Short CV

Sonya Grier is an Associate Professor of Marketing Kogod School of Business, American University. Dr. Grier conducts interdisciplinary research on topics related to the societal impact of targeted marketing efforts (both commercial and social) within and across cultures and countries. Her current research investigates the relationship between marketing activities and consumer health, with a focus on obesity prevention among high-risk groups. Prior to joining American University, she was a member of the first cohort of the Robert Wood Johnson Foundation Health &Society Scholar program at the University of Pennsylvania. She also spent two years as an in-house consultant at the Federal Trade Commission, where she provided consumer research expertise as part of a presidential mandated team examining the target marketing of violent movies, music and video games to American youth. Dr. Grier has published her research in leading marketing, psychology and public health journals. She received her Ph.D. in Marketing, with a minor in Social Psychology, from Northwestern University in 1996. Dr. Grier also has an MBA from the J.L. Kellogg Graduate School of Management, Northwestern University, with an emphasis on marketing, non-profit management and international business. Her undergraduate degree is also from Northwestern University, with a major in Political Science.

Prof. Klaus G. Grunert
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Abstract

How can we improve consumer understanding of nutritional concepts such as health schemes (e.g. pyramids etc.), health claims, labeling?
This talk will review evidence and identify knowledge gaps with regard to how consumers perceive and process nutrition-related concepts. This will include dietary guidelines as well as product-related information like health claims and nutrition content. The talk will emphasize the importance of motivation and previous knowledge for the understanding of nutritional concepts and explore the dimensionality of the concept 'understanding'. Several research examples on consumer understanding of dietary guidelines, nutrition labels and health claims will be presented. It is concluded that understanding is a constructive process and that the role of understanding in furthering healthy eating needs to be viewed together with questions of consumer motivation.

Short CV

Klaus G. Grunert is Professor of Marketing at Aarhus University, and is the founder and director of the MAPP Center for Research on Customer Relations in the Food Sector. He has done extensive research in the area of consumer behaviour, mostly with regard to food, and in making consumer insight useful in areas like new product development, market communication and public policy campaigns aimed at healthy eating or other socially desirable behaviours. In particular, he has done research on quality perception and food choice, healthy eating, public acceptance of biotechnology and especially genetic modification, on how insight into consumer behaviour feeds into product development processes in food producing companies, and on competence development in the food industry. As director of MAPP, he has carried out more than 80 collaboration projects with the food industry, including several pan-European studies, and has participated in or led numerous EU FP projects. He is the author of 12 books, 148 academic papers in international refereed journals and numerous other publications. Klaus is a past president of the European Marketing Academy and is professor of the European Institute for Advanced Studies in Management. Klaus is a German citizen who has lived in Denmark since 1987. His research and visiting appointments at other universities have taken him around the world.

Professor Marion M. Hetherington
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Abstract

Understanding Nutrition-Related Consumer Behaviour: Strategies to Promote a Lifetime of Healthy Food Choices.

Across the EC and US few consumers select a diet which meets recommended levels of fruits, vegetables, and fibre. Instead food choices are based on cost, palatability, habit and convenience. Healthy foods which are nutrient rich but low in energy density promote health but are expensive. Thus, health inequalities emerge across nations whereby lower income families struggle to eat well and have higher levels of obesity, diabetes and other non-communicable diseases. In this EC-US joint symposium we will discuss with key opinion leaders from academia, industry and other stakeholders the determinants of healthy dietary choices and consider the science of food choice. In particular, the determinants of eating behaviour across the life span from infancy to later life will be explored spanning different populations, individual differences and the wider cultural, environmental and political context which might influence food choice.

Short CV

Professor Hetherington has held a chair in Biopsychology at the University of Leeds since 2008; previously she was appointed to chair at the University of Liverpool in 2001 and held a Futures Professorship at Glasgow Caledonian University in 2005. She began her academic career at the University of Dundee with interests in the field of energy balance, appetite regulation, obesity and eating disorders. Her undergraduate degree in Psychology is from the University of Glasgow, her DPhil in Experimental Psychology from the University of Oxford. She held a Fulbright scholarship and then postdoctoral fellowship at the Johns Hopkins University in Baltimore and a Fogarty International Fellowship at the National Institutes of Health in Bethesda. MD. Her particular interests include the development of food preferences in children; causes of childhood obesity; cues for overeating in children and young adults; and the anorexia of aging. Her research operates across the lifespan. As evidence of her standing in this area: she has published more than 100 peer-reviewed papers and invited chapters, served as President of the Society for the Study of Ingestive Behavior (2009-2010) and has been elected to the Board of Trustees of the Association for the Study of Obesity currently serving as its treasurer. She is a member of the EASO scientific advisory committee. She has received funding from BBSRC, ESRC, EU and NIH including two grants which were linked to industry. She is currently coordinator of the EU FP7 Marie Curie Industry-Academic- Partnerships and Pathways VIVA award investigating learning theory and its application to the acquisition of preferences for vegetables. She has chaired the ILSI Benefits of Satiety expert panel, served on various advisory committees for industry and the public sector including the Food Advisory Committee for Glasgow City Council and sits on the board for the Feeding for Life Foundation.

Van S. Hubbard, M.D., Ph.D.
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Short CV

Van S. Hubbard, M.D., Ph.D. is Director, NIH Division of Nutrition Research Coordination and Associate Director for Nutritional Sciences, National Institute of Diabetes and Digestive and Kidney Diseases, National Institutes of Health. He is responsible for development of research initiatives and management of research programs related to the nutritional sciences and obesity.

Dr. Hubbard has been at NIH since 1976 in various positions and attained the rank of Rear Admiral and Assistant Surgeon General within the Commissioned Corps of the US Public Health Service prior to transitioning to civilian service in 2010. He currently is chair of the NIH Nutrition Coordinating Committee and serves as the NIH representative on numerous federal and non-federal committees and work groups including various Healthy People 2010 work groups. From 2005-2008, Dr. Hubbard served as the Senior Advisor to the Secretary of DHHS on Obesity in addition to his other positions. Additionally, he serves on several non-federal committees such as the Committee on Nutrition of the American Academy of Pediatrics and the International Advisory Board of the Medical Nutrition Education Project at the University of North Carolina at Chapel Hill. Other professional activities include serving as Professor of Pediatrics at the Uniformed Services University of the Health Sciences.

Dr. Hubbard has received many honors from the US government, such as the Certificates of Appreciation from FDA, DHHS, and USDA. He also has been awarded the USPHS Outstanding Service Medal, three Meritorious Service Medals, and the Surgeon General's Exemplary Service Medal, as well as two DHHS Secretary's Awards for Distinguished Service and three NIH Director's Awards. Dr. Hubbard is a Diplomate of the National Board of Medical Examiners and Fellow of the American Academy of Pediatrics. In 2000, he was made an Honorary Member of the American Dietetic Association. In 2002, he received the George Bray Founders Award from the North American Association for the Study of Obesity and in 2010, he received the Society's Mickey Stunkard Lifetime Achievement Award. He was selected to receive the 2012 Barney Sellers Public Policy Award from the American Society for Parenteral and Enteral Nutrition. His major research interests are clinical nutrition, obesity, cystic fibrosis, and nutritional modulation of disease risk.

He received his Ph.D. in biochemistry and his M.D. from the Medical College of Virginia, Virginia Commonwealth University. Prior to coming to NIH, he completed an internship and his residency in the Department of Pediatrics at the University of Minnesota Hospitals.

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Abstract

Critical periods, feeding practices, lifestyle and environmental influences on young children's food acceptance, intake patterns and future eating habits.

Vegetable is the food category which is the least liked by children. As liking is the main determinant of food consumption in children and as early eating habits track on during childhood and up to adulthood, it is particularly important to identify the early determinants of vegetable acceptance.

During this presentation, results of studies based on experimental and/or observational approaches and exploring the impact of breastfeeding, timing of introduction, variety of complementary foods, and parental practices on vegetable acceptance or intake will be presented.

Experimental approaches have shown that breastfeeding facilitates the initial acceptance of new foods introduced in the infants' diet. Two mechanisms could explain this higher initial acceptance by breastfed infants compared to formula fed infants. The first one is flavour learning due to maternal dietary intake, and thus to the exposure via mother's milk. The second one is variety learning due to the daily variation of mother's milk flavour compared to the stable flavour of formula milks. In the Opaline cohort of more than 300 mother-infant pairs recruited in the Dijon area (France), no effect of breastfeeding was observed on the acceptance of novel vegetables offered during the first months of introduction of complementary foods. Within the HabEat project data from four European cohorts, the British Avon Longitudinal Study of Parents and Children (ALSPAC), the French EDEN study, the Portuguese Generation XXI Birth Cohort, and the Greek EUROPREVALL study, were analysed. Breastfeeding duration was positively associated with later vegetable intake during childhood. This relationship between breastfeeding and later vegetable intake was observed even when the model was adjusted for maternal age, maternal education, and maternal own fruit and vegetables intake.

Analyses conducted on the same data revealed that association with the age of introduction to vegetables was less consistent across the cohorts than the association with breastfeeding. Within the Opaline cohort no significant difference in acceptance of new vegetables was observed between the infants weaned before 6 months and those weaned after 6 months.

Concerning texture, children introduced to lumpy solids after the age of 9 months ate, at seven years, less of many of the food groups, including fruits and vegetables, than those introduced to lumpy foods between 6 and 9 months. Moreover, it was found that familiarity with different textures, especially chopped foods, was the strongest predictor of intake and liking of chopped carrots for 12-month old infants.

Different experimental studies revealed that early exposure to a variety of vegetables induces a higher acceptance of the new vegetables

presented to the infants. This positive association between early variety and vegetable acceptance during the first months of complementary feeding was also observed within Opaline. At the weaning stage, an intervention aiming at offering infants a variety of vegetables was most effective in the UK, a country where mothers rarely offer vegetables as a first food.

Some parental feeding practices were found to be associated with vegetable liking at 2 years within the Opaline cohort: the more the mothers were permissive the lower the children's vegetable liking, and the more the mothers used reward, the higher the children's vegetable acceptance. A permissive style and practices to fulfil child's desires, as well as an authoritarian style, contingent (i.e. use of reward) and coercive practices aimed at forcing children to taste rejected foods, were associated positively with children's eating difficulties. Thus, these results on using rewards are contradictory as those from other studies which have shown either a positive or a negative association on food acceptance. However, recent studies suggest that the use of non-food rewards or praise can be effective in encouraging children to taste new or less liked foods.

This is quite important to initiate tasting as many studies have shown the effectiveness of repeated exposure for increasing vegetable intake even for a disliked vegetable. In infants, it was observed that after 7 exposures a vegetable, initially considered by mothers as disliked by their infant, was consumed as much as an initially liked vegetable. However, a survey conducted in one French city and in one German city indicated that most mothers offered a food that they considered as disliked by their infant no more than at three meals before giving up and deciding not to offer it again.

To conclude some early determinants of healthy eating habits such as vegetable intake have been clearly identified. On the basis of these results it should be possible to give some recommendations concerning in particular weaning practices.

Short CV

Dr Sylvie Issanchou is senior scientist at INRA (Institut National de la Recherche Agronomique). She has a background in food science and sensory evaluation.

Within the research unit CSGA (Centre des Sciences du Goût et de l'Alimentation), she leads a research group working on the Development and dynamics of food preferences and eating behaviour. This group focuses its research on the factors determining human eating behaviour and, its evolution over food experience and according to the context of these experiences using experimental and observational studies. Since 2001, her group has developed research activities on the development of food preferences during infancy due to the importance of the early years in later food preferences and behaviour. More recently, part of the group has developed a research programme whose aim is to improve meal pleasure and intake in frail elderly, a population with an important prevalence of malnutrition.

Within the context of 'Opaline', a project funded by ANR (The French National Research Agency), a cohort of more than 300 mother-infant pairs was recruited and followed up to 2 years. The originality of the project was to pay a particular attention to the sensory dimension of early experiences, and also to look at the family feeding practices. Her research group has recently started a project on the development of the attraction toward sweet and/or fatty foods in children and is involved in the Diet & Nutrition group of the Elfe cohort, a French longitudinal study launched in April 2011

tracking children from birth to adulthood.

She is a member of the editorial board of Journal of Food Quality, Food Quality and Preference, Chemosensory Perception, and Flavour. She is author of about 80 scientific papers in international refereed journals, 17 book chapters and over 150 communications in international or national meetings. She is the coordinator of a European project on the 'Determining factors and critical periods in food habit formation and breaking in early childhood: a multidisciplinary approach' funded by the European Community's Seventh Framework Program (FP7-245012-HabEat).

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Short CV

Education:
Postdoctoral Fellowship, Department of Pediatrics, University of Colorado Health Sciences Center, (1994)
Ph.D. Nutritional Sciences, University of Illinois at Urbana-Champaign, (1993)
M.S., Nutrition Science, The Pennsylvania State University, (1987)
B.S., Biology, University of North Carolina at Chapel Hill, (1980)

Professional Experience:
1995 – present Instructor – Full Professor, Department of Pediatrics, Director of the Children's Eating Laboratory, University of Colorado Denver School of Medicine

Adjunct Faculty:
Department of Community and Behavioral Health, University of Colorado Denver, Colorado School of Public Health; Graduate School, University of Colorado Denver; Department of Food Science and Human Nutrition, Colorado State University, Fort Collins, CO

2009 – Present: Associate Editor, Journal of Nutrition Education and Behavior

Major Scientific Interests:
My research focuses on the development of children's eating behaviors and weight outcomes and the impact of the mealtime environment upon children's eating patterns. Specifically, The Children's Eating Laboratory is currently funded to conduct research which:
investigates whether and how family eating and child-feeding strategies impact children's eating behavior and weight outcome—specifically related to the etiology and prevention of childhood obesity.
focuses on differences in child-feeding and physical activity that are related to ethnicity, gender and socioeconomic status and how these relate to childhood obesity.
examines cross-cultural aspects of children's eating behaviors both in the United States and internationally.
investigates the feeding strategies and nutrition knowledge of child care professionals.
focuses on the physiological signals of hunger and satiety (fullness) that may be useful in developing interventions to improve weight outcome in children.

Research History
Over the last 20 years, principal investigator or co-investigator on numerous grants from USDA & NIH examining the role of caregivers in influencing children's and adolescents' eating and weight outcome.
Over the last 10 years, engaged in collaborative, multi-institutional studies of child feeding, activity, and the development of child obesity in low-income Latino and African American families.

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Short CV

Wendy is currently Head of Corporate Affairs with Nestle Nutrition, North America. In this role she is the public health policy advisor for the nutrition companies. She actively participates with the Institute of Medicine Food Forum, the Obesity Society Corporate Advisory Board and the American Association of Clinical Endocrinologists Corporate Advisory Board. Wendy is also a member of the International Food Information Council Board of Directors. She is also active in the American Public Health Association and the Academy of Nutrition and Dietetics.

Prior to joining Nestle, Wendy was employed by the National Institutes of Health, Division of Nutrition Research Coordination as a public health nutrition and health policy adviser. While there she was actively involved in the development and follow-up actions to the Surgeon General's Call to Action to Prevent and Decrease Overweight and Obesity and the Dietary Guidelines process. She developed scientific symposia on communicating dietary information and determinants of eating behavior which informed the granting process by leading to the development of requests for proposals. Wendy has also held a number of clinical nutrition management positions and nutrition faculty positions.

She received her BA in chemistry, MPH in nutrition and PhD in nutrition and health policy from the University of North Carolina at Chapel Hill. Her research interests include determinants of eating behavior, racial and ethnic health disparities and obesity.

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Abstract

Are incentives, behavioral contracts, and behavioral economics-based approaches useful for promoting robust and sustainable nutrition-related behavior change?

While there has been some excitement regarding the use of nutrition incentives, behavioral contracts and more general behavioral interventions and their apparent impacts in laboratory and field studies, the potential for long-term impacts on behavior is largely unexplored in the context of eating behaviors. Together with the apparent positive impacts, each of these approaches brings with it some substantial concerns regarding long-term effectiveness, and whether the observed impacts can be sustained over longer periods of time. In this presentation I will review a sampling of the evidence for each, and the potential questions. In seeking to determine whether these approaches are useful, we must also consider the costs of engaging in these strategies, and the relative effectiveness of alternative strategies (for example, those that are much more paternalistic).

Several studies have found that incentives can play a significant role in improving nutrition. Both children and adults have been found to respond to small incentives to consume fruits and vegetables. Behavioral economic nudges and social contracts have also demonstrated a substantial ability to improve nutritional intake. The recent changes in the US school lunch guidelines allows us a framework to compare the cost and effectiveness of each of these potential strategies with a more paternalistic approach (requiring children to take a fruit or vegetable). The incentives have a substantial cost advantage, and also result in much less waste. Finally, behavioral economic "nudges" are approximately as effective as the incentives and cost substantially less. While the nudges result in less waste than the paternalistic policy, they are not as effective as incentives at reducing waste.

There is relatively little evidence regarding the long-term effectiveness of any of these policies in changing nutrition behavior. Many are concerned that incentives, once removed, will result in a decrease in the desired activity. There is little evidence that this is the case. Moreover, the existing literature on incentives in behavior change suggest there is potential for long term behavior change. The longer-term impacts of social contracts and behavioral nudges have faced similar challenges. Some studies have demonstrated the viability of nudges for longer term behavior modification within context, though little evidence exists to suggest that this will affect behavior out of context. Alternatively, there is substantial evidence that while paternalistic policies can have sustained impacts within context, they generally lead to substantial negative impacts outside of context and do not have the potential to change habits.

Short CV

Education: Ph.D. 2001, M.S. 1999, University of California, Berkeley; B.A. 1998 Brigham Young University
Cornell University Associate Professor 2008 – , Director of Graduate Studies 2008 – 2011, Co-Director Cornell Center for Behavioral Economics and Child Nutrition Programs 2008 –, Assistant Professor 2002 – 2008

HONORS AND AWARDS
Agricultural and Applied Economics Association Quality of Research Discovery (2011 Honorable Mention)
American Journal of Agricultural Economics Outstanding Journal Article (2011 honorable mention, 2009, 2008 honorable mention)
Agricultural and Applied Economics Association Quality of Communication Award (2011)
European Association of Agricultural Economics, Quality of Research Discovery Award (2009)
Grant support in excess of $7Million since joining Cornell University

EDITORIAL BOARDS
2010 – 2013 Editor, Agricultural and Resource Economics Review
2010 – 2014 American Journal of Agricultural Economics
2008 – 2010 Agricultural and Resource Economics Review

Research has been covered in the following news outlets (among others): NPR, ABC News, CBS News, NBC News, Discover Magazine, Nature, Newsweek, U.S. News and World Reports; Scientific American, Washington Post, Forbes, Bloomberg Television.
More than 70 published articles appearing in (among others): Review of Economics and Statistics, Journal of Econometrics, Pediatrics, American Economic Review, Journal of Economic Behavior and Organization, Annals of Behavioral Medicine

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Abstract

What are the critical policy or organizational factors (school, worksite) that result in a sustained positive change in individual eating behavior?
The talk reviews the evidence relative to the effectiveness of policy measures targeting individual eating behaviours, mainly gathered within the Eatwell research project (7FP). The presentation will first consider the criteria for producing robust evaluations, then report on an extensive critical review of the existing evaluation efforts, plus a selection of ad-hoc case studies within the remit of the project. Policy measures being reviewed include information measures (e.g. social marketing campaigns like 5-a-day) and market measures (banning vending machines from schools, fiscal policies). The conclusions will discuss the robustness of the evidence base and attempt a prioritisation of public interventions.

Short CV

Mario Mazzocchi is associate professor in Statistics and Economics at the Department of Statistical Sciences of the University of Bologna and has previously served as a lecturer in Applied Economics and Consumer Behaviour at the University of Reading. He is currently a consultant to FAO on nutrition policies, and has been appointed by the European Commission as a permanent member of the group of experts on the evaluation of the EU School Fruit Scheme. He is Associate Editor of the journal Food Policy. He has led research teams of the University of Bologna in four EC-funded research projects. His publication record includes two books, with Oxford University Press (Fat Economics) and Sage Publications (Statistics for Marketing and Consumer Research) and about 40 articles in international refereed papers on a variety of applied economics topics, including policy evaluation, consumer demand, health economics, tourism economics, marketing research methods, time series econometrics.

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Dr. Angela Odoms-Young is an Assistant Professor in Kinesiology and Nutrition in the College of Applied Health Sciences at the University of Illinois at Chicago (UIC). Her research is focused on understanding social, cultural, and environmental determinants of dietary behaviors and diet-related health conditions (including obesity, diabetes, and cancer) in low-income and minority populations. Her current projects include studies evaluating the impact of the new WIC food package on dietary intake, weight status, and chronic disease risk in 2-3 year old low-income children; examining relationships between neighborhood food availability, eating behaviors, and weight status in Latino children; developing culturally appropriate nutrition education for African-American parents of young children; using community-based participatory research to adapt an evidence-based weight loss intervention for low-income African American women; and understanding the influence of food marketing on dietary intake in African American families. Dr. Odoms-Young completed a Family Research Consortium Postdoctoral Fellowship examining family processes in diverse populations at the Pennsylvania State University/University of Illinois at Urbana and a Community Health Scholars Fellowship in community-based participatory research at the University Of Michigan School Of Public Health. Dr. Odoms-Young earned a B.S. degree in foods and nutrition from the University of Illinois-Urbana/Champaign and M.S. and Ph.D. degrees from Cornell University in human nutrition and community nutrition, respectively.

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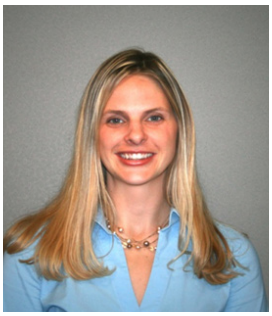
Short CV

Dr. Kathleen Reidy holds the position of Head, Nutrition Science for Nestle Infant Nutrition. In this role, Kathleen is responsible for the application of nutrition science to guide the development of baby food products with superior nutrition design. She also has responsibility for the Feeding Infants and Toddlers Studies (FITS), dietary surveys to understand the eating habits and nutritional gaps in the diets of children age 0-48 months. She has played a key leadership role in the development and implementation of Nestle's Start Healthy, Stay Healthy™ research and education initiative to help parents teach healthy eating habits early in life. Dr. Reidy has published and spoken widely on the FITS studies.

Dr. Reidy has 20 years experience in the food industry, and in addition to her corporate experience, she has also served as an adjunct assistant professor at New York Medical College. Dr. Reidy received her Bachelor of Science degree from Cornell University and earned both her Master of Public Health and Doctor of Public Health in Nutrition at the University of North Carolina at Chapel Hill, School of Public Health. She is a registered dietitian and a member of the American Society of Nutritional Science, the American Public Health Association and the American Dietetic Association.



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Abstract

Early infant and childhood feeding experiences provide opportunity to shape taste preference and dietary behaviors.

The first years of life mark a time of rapid development and dietary change, as children transition from an exclusive milk diet to a modified adult diet. During these early years, children's learning about food and eating plays a central role in shaping subsequent food choices, diet quality, and weight status. Evidence points to early dietary factors such as the promotion of breastfeeding as well as parental feeding practices influencing the development of taste preference and eating behavior. Ultimately, what has become familiar tends to be preferred while the unfamiliar is avoided. Studies also reveal that liking is impacted by associative learning processes where new stimuli become liked via repeated pairings with familiar, already-liked stimuli. In addition to the ability to learn to like new foods and flavors, infants bring genetic taste predispositions to the table, including an unlearned preference for sweet and salty tastes and a tendency to reject bitter and sour tastes. Parenting practices, especially responsive feeding (i.e., controlling, non-responsive feeding) may also influence the development of taste preferences and dietary behaviors; however, there is evidence that individual differences on child and parent characteristics may moderate this association. Thus, parents play a powerful role in children's eating behavior. This paper will review current evidence demonstrating how familiarization and associative learning paradigms may be used to increase young children's acceptance of, and preference for, and intake of initially rejected foods like vegetables within an obesogenic context while also addressing how individual differences in psychosocial factors, temperament, and susceptibility to portion size impact parenting and dietary behavior.

Short CV

Jennifer Savage Williams, Ph.D., is the Associate Director at the Center for Childhood Obesity Research at the Pennsylvania State University, where she also holds an appointment in the Department of Nutritional Sciences. Her career has focused on conducting research on factors that influence the developing controls of food intake across the lifespan including infancy, childhood, adolescence, and adulthood. This research has provided insight into individual and familial factors implicated in the development of food preferences, eating behaviors, dietary intake and risk and protective factors for childhood obesity. Dr. Savage's work has also examined family and community factors linked with childhood obesity and the development of sustainable programs for obesity prevention. Studies to date have examined factors associated with responsive parenting such as maternal psychosocial factors, child temperament, and contextual factors and

how these factors influence healthy growth-trajectories among infants and toddlers. Most recently, her research has focused on family-centered interventions to prevent child obesity in low-income populations as well as using system science to develop an optimized intervention to promote healthy gestational weight gain among overweight and obese mothers. Dr. Savage Williams has published numerous publications since she received her Ph.D. in Nutritional Sciences from the Pennsylvania State University.

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Abstract

How does nutrition information on food labels affect dietary choices, consumers' habits and food related issues?

The recent literature on food labels, and the nutrition information that they contain, has progressed along several dimensions. On the one hand, it has looked at the extent to which nutrition information on foods labels helps consumer in identifying the healthier option(s) from assortments. Such distinctiveness of healthier options within the choice context is pivotal, and the literature shows that indeed food labels are of considerable help in this respect. A second line of research has explored to what extent nutrition information on food labels has an effect on actual purchase and consumption behaviors. This line of research has received a lot of attention recently, and is reported in a considerable number of systematic reviews. The take out of this line of research is that nutrition information on labels has no or at best a very small and inconsistent effect on actual food choices.

The presentation will focus on where this key finding leaves us in terms of future research challenges. It will do so by arguing that the lack of healthful food choices is not so much an issue of lack of information and knowledge, but rather a motivational issue. It will argue that the meaning and impact of nutrition information on labels can best be enhanced if we combine the focus on nutritional quality transparency (on food labels, shelf tags or restaurant menus) with complementary approaches to make the health goal / motivation salient at the point of purchase. So in conclusion, it seems that nutrition information on food labels is a necessary (in terms of information transparency and consumers' right to be informed), yet insufficient condition for improving consumer food choices. The field is best served by studies that do not test the effect of nutritional labels while assuming health motivation, but rather by studies that do so while developing health motivation.

Short CV

Hans C.M. van Trijp is Professor of Marketing and Consumer Behavior at Wageningen University in the Netherlands. For many years (1996-2012) he has combined his academic post with a part-time affiliation with the Consumer Science Unit (now Sensation, Perception & Behavior) at Unilever Research and Development in the role of Senior Scientist Consumer Behavior. He has done extensive research in the areas of marketing and consumer behavior. His research has focused on such areas a variety seeking in food choice behavior, research methodology for new product innovation, and in recent years increasingly on the issue of how fundamental insights into consumer decision making and choice can inform (social) marketing to stimulate sustainable development in food and agriculture.

He has served as one of the scientific directors (with a focus on market demand for sustainable foods and services) within the Dutch innovation program Transforum, aimed at stimulating sustainable developments in the Dutch food and agribusiness. Since 2005 he acts as the Chair of the Food and Consumer working group within the European Technology Platform, with the aim to identify future research challenges within this domain.

Over the years he has participated in numerous EU FP projects, he is the (co-) editor of four books and has published extensively in the domain of food and that of marketing and consumer behavior. He is a member of the editorial boards of Food Quality and Preference and International Journal of Research in Marketing.

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Abstract

Influences on Food Choice: Spurning, Learning and Yearning

The continued discrepancy between dietary recommendations and actual food consumption patterns poses a challenge that is shared by government and industry. Public health campaigns are needed to motivate consumers to value healthier products, while healthier products need to have good and sustained acceptability to help consumers to act on government advice. To date, governments have relied on educational strategies in order to raise consumer knowledge about the relationship between nutrition and health. It was tacitly assumed that consumers convert this knowledge into behaviour. However, the approach has not been very effective in changing food choice behaviour. In reality, consumers tend to think the guidance does not apply to them, or the short-term attraction of a tasty meal or snack outweighs the long-term benefits of improved health. Furthermore, explicit health labelling on products can also lead to negative impressions of products or counter-effective behaviours. The question now is what type of public health and commercial approaches will be successful in influencing and sustaining the food selection process in a more healthy direction?

Food choices and eating behaviour are determined by a large number of factors related to the food (e.g., energy content, sensory attributes), the person making the food choice (e.g., experience, beliefs, ideas and cognitive associations that people have with certain foods in certain eating contexts) and the economic and social context in which the choice is made (e.g., price, availability, portion sizes, labelling). Learned associations, i.e., cognitions about foods and their eating context, play a dominant role in food choice and eating. The focus of this presentation will be on the key determinants that influence food choice behaviour. It will also highlight the key current challenges and new research opportunities from the relevant areas of science.

Short CV

Dr Liesbeth Zandstra is currently Senior Scientist Reward & Behaviour of the Consumer Science group and has been with Unilever for 13 years. From 1996 until 2000 she was appointed as a PhD fellow at Wageningen University (NL) and conducted research in the area of food acceptance, appetite control and the regulation of food intake, as part of the EU-project, entitled ‘Understanding and improving the selection and acceptance of foods for health promotion’. After her PhD, she joined Unilever R&D Vlaardingen (NL), and continued to investigate psychophysiological and behavioural effects of foods and beverages, as well as mechanisms of preference development. She has taught graduate courses in reward-based learning and decision-making, and has experience in supervising research projects and research staff, both in academia and at Unilever. To date, Liesbeth Zandstra has published over 27 papers in international peer reviewed journals.

Rapporteurs

Laura Bellows
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Short CV

Laura Bellows is an Assistant Professor and Extension Specialist in the Department of Food Science and Human Nutrition at Colorado State University. She received her bachelor's in Exercise Science and Health Promotion from Miami University in Ohio, her Masters of Public Health in Human Nutrition from the University of Michigan and her Ph.D. in Community Nutrition from Colorado State University. Dr. Bellows' research is focused on the development of eating habits and physical activity patterns in early childhood; and the influence of parental behaviors and the home environment on the development of these behaviors. Over the last 12 years, Dr. Bellows has developed, evaluated, and coordinated wide-spread implementation of The Food Friends®, a preschool nutrition and physical activity program. She is currently the Principal Investigator of the Colorado LEAP study, a USDA AFRI grant aimed at exploring if healthy behaviors developed in preschool are maintained through early elementary school. In 2011, Dr. Bellows was awarded the Presidential Early Career Award for Scientists and Engineers (PECASE), the highest honor bestowed by the United States government on science and engineering professionals in the early stages of their independent research careers.

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Short CV

Karl E. Friedl, PhD, retired from the US Army after thirty years of service and is currently an NIH volunteer and physiology research consultant. His last assignment was as the Director, Telemedicine and Advanced Technology Research Center (TATRC) for the US Army Medical Research and Materiel Command in Frederick, Maryland. He received his Doctor of Philosophy (Integrative Physiology) from the University of California at Santa Barbara, in the University's Institute of Environmental Stress in 1984. As a research physiologist, he has published 150 papers, book chapters, and other reviews and technical reports. As a research manager and director, he has facilitated research cooperation between government agencies including the DoD, VA, NIH, NASA, FDA, and USDA and organized and directed research initiatives such military women's health, Gulf War illnesses, bone health, and Parkinson's research programs. His research focus areas are applications of metabolism and neurobiology technologies, assessment methods and metrics of research success, and strategies to accelerate research translation to practice. He is a member of the American Society for Nutrition, AMSUS, Endocrine Society, and a fellow of the American Institute for Medical and Biological Engineering (AIMBE). His awards and recognition include Legion of Merit (2d Oak Leaf Cluster), Morris K. Udall Award for Parkinson's Research Advocacy, Ronald and Nancy Reagan Alzheimer's Research Award, Founder's Award for the Pennington Biomedical Research Center, Order of Military Medical Merit, and Diabetes Technology Society Research Leadership Award.

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Short CV

Sanne Griffioen-Roose was born on May 12th, 1982 in Amersfoort, the Netherlands. In 2004 she received her Bachelor's degree in Biomedical Sciences at the University of Utrecht, after which she enrolled in the Master Programme 'Neuroscience and Cognition'. After having received her Master's degree in 2006, she was appointed as a junior researcher at TNO (a Dutch acronym for applied scientific knowledge) Quality of Life in Zeist. Within one year Sanne decided she would like to pursue a PhD. In October 2007, Sanne was appointed as a PhD candidate at the Division of Human Nutrition at Wageningen University. Human behaviour has always been her main topic of interest, and this project offered her an opportunity to investigate this in relation to food. Her research specifically focussed on the role of sweet and savoury taste in food intake and food preferences. During her PhD she executed several large interventions which have all been published in international scientific journals and she presented her work at several (international) conferences. In 2012 she defended her thesis and continued working as a post-doctoral worker on the neurobiology of eating behaviour, which involved both behavioural research and fMRI measurements. In May 2013 Sanne started working as a Researcher at FrieslandCampina, Department Sensory & Consumer Science in Deventer, the Netherlands.

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Short CV

Veerle Lammens is currently a Scientific Officer in the unit Food, Health and Well-being in the European Commission's Directorate General for Research and Innovation. She is working in the area of a sustainable and competitive agri-food industry. She holds a Master in Bioscience Engineering – Katholieke Universiteit Leuven, Belgium (2004).

She started her professional career as a researcher at the Faculty of Bioscience Engineering (KULeuven). The results of this research have been published in international scientific journals. After four years of working as a product safety and regulatory affairs officer in an international flavour company, she joined the European Commission's Directorate General for Research and Innovation in 2012.

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Short CV

Education

10/09 – 11/12 PHD:

Nutrition in older adult care home residents: Evaluating psychological barriers that affect compliance to oral nutritional supplements and methods to improve compliance, Based at the University of Leeds, Institute of Psychological Sciences (IPS), Matched funding from IPS and Danone Research Centre of Specialised Nutrition, The Netherlands

09/08 – 09/09 MMedSci Human Nutrition,
The University of Sheffield

09/05-06/08 BSc (hons) Human Biology,
The University of Hull

Employment

02/13- present Nutritionist, Nestle Product Technology Centre, York

09/11 – 11/12 Part time lecturer, Leeds Metropolitan University

01/09 – 08/09 Sports nutritionist (voluntary), Wakefield Trinity Wildcats

Research papers, Presentations, Grants

• Oral presentation, Nutrition in older adult care home residents, research summary and developments. Danone sensory meeting 2011, The Netherlands

• Publication, Norris ESA, Shelton F, Hetherington MM (2011) Nutrition screening of older adults living in care homes. E-SPEN, the European Journal of Clinical Nutrition and Metabolism. 6 (3): 106-108

• Poster presentation, Nutrition screening of older adults living in care homes. American Association of Clinical Nutrition and Metabolism, annual conference, San Francisco, 2011

• Funding from The Wellcome Trust, Summer studentship awarded to 2nd year undergraduate student to undertake nutritional screening in care homes, 2010

Sylvia Rowe
President,
SR Strategy 1100 Connecticut Ave, NW, Ste 1000 Washington, DC 20036 The USA
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Short CV

Sylvia Rowe is currently president of SR Strategy pursuing communications and issues management consulting on a broad range of health, nutrition, food safety and risk issues. She is also an Adjunct Professor at the University of Massachusetts Amherst and Tufts Friedman School of Nutrition Science and Policy.

Previously Rowe served as president and chief executive officer of the International Food Information Council (IFIC) and IFIC Foundation, in Washington, DC, nonprofit organizations that communicate science-based information on food safety and nutrition issues to health professionals, journalists, government officials, educators and consumers. IFIC's programs are primarily supported by the broad-based food, beverage and agricultural industries. During her eleven-year tenure, IFIC established itself as a leader in consumer research and consumer-based communications in nutrition, food safety, and health. Rowe's leadership resulted in national public-private partnerships and coalitions between IFIC and preeminent government agencies and health organizations committed to developing science-based consumer communications on healthful lifestyles.

Rowe's background in media and expertise in issues management are reflected in her professional history as a producer and on-air host of several television and radio talk shows covering social, political, economic and consumer issues. She also previously held positions in public relations, marketing, and membership development for several diverse associations. Rowe is a Distinguished IFT Speaker and Contributing Editor of Nutrition Today.

She has served on several Boards and Advisory Committees of the following: Institute of Medicine Food Forum, Food Allergy and Anaphylaxis Network, American Society for Nutrition Publications Management Committee, Washington D.C. Mayor's Commission on Food, Nutrition and Health, the American Heart Association's Council on Nutrition, Physical Activity and Metabolism, the Grains for Health Foundation, University of Massachusetts Amherst Food Science Policy Program, Tufts University School of Nutrition Science and Policy Graduate Program in Nutrition Communication, University of Rochester Medical Center Nutrition Academic Award Program, Food and Drug Law Institute, Society for Nutrition Education Foundation, Maryland Title IX Commission and the American Society of Association Executives Foundation. She is also a member of the International Women's Leadership Forum and the National Press Club among other professional groups. Rowe received a Bachelor's Degree from Wellesley College and was awarded a Masters' Degree from Harvard University, both with honors.

Maha Tahiri, PhD
Senior Technology Director
General Mills Bell Institute of Health and Nutrition

Short CV

Maha Tahiri is Senior Technology Director at General Mills Inc. where she is head of the Bell Institute of Health and Nutrition. Maha leads nutrition and food science professionals in delivering strategic innovation in health and nutrition for the company.

Most recently, Maha was Global Innovation and New Benefits Director for Danone Research Dairy Division in France. In this role, Maha reorganized and defined a long-term worldwide innovation strategy while building an innovation pipeline. Prior to her role at Danone, Maha was the Nutrition Director for Coca-Cola, France. In this role, Maha defined a health and nutrition strategy and delivered an action plan including sugar reduction and responsible marketing to children. Maha held the roles of Nutrition Innovation Manager and Nutrition Communication Manager at Mars for Europe, Middle East, and North Africa prior to her role at Coca-Cola.

Maha's experience in Europe, Middle East, and Africa brings a wealth of global knowledge regarding nutrition programs, scientific and regulatory positions to General Mills. In addition to the breadth of global regulatory and nutrition experience, Maha holds a Ph.D. in Human Nutrition from the National Institute of Agricultural Research, France.

Maha is a member of the IOM Food Forum, EUFIC and International Food Information Council Boards, and the International Life Science Institute.

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Presentations

Session 1 - Talk 3: What are the most effective strategies for parents & families to use to form healthy habits and modify unhealthy habits in infants and young children?
Dr. Jean-Michel Borys, MD, Director of the EEN, Director of the Fleurbaix Laventie Ville Santé study & Co-founder/Co-director of the EPODE programme & EPODE European Network

epode international network

What are the most effective strategies for parents & families to use to form healthy habits and modify unhealthy habits in infants and young children?

ISBNPA Research Satellite Symposium
Gent, May 2013

Dr. Jean-Michel Borys, EPODE International Network
jmborys@proteines.fr

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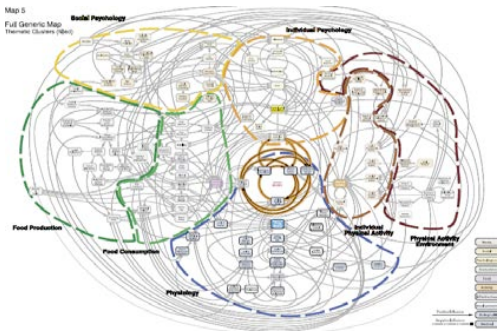
Healthy lifestyle , a complex system



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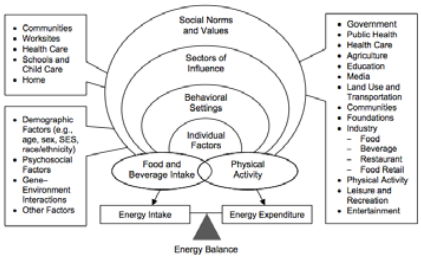
A balance between genetic, behaviour and environment



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A combined approach

•**THE POPULATION-WIDE APPROACH** is not effective if there is no support for high-risk subjects

• **THE INDIVIDUAL APPROACH** is unlikely to work in a lasting way if the community is not prepared at the same time

- *« The most promising approaches for obesity and NCDs prevention are population-based and multilevel, focus on environmental and policy change, and require participation from actors in multiple sectors. »*

Bridging the Evidence Gap in Obesity Prevention: A Framework to Inform Decision Making. Shiriki K. Kumanyika, Lynn Parker, and Leslie J. Sim, Editors; Committee on an Evidence Framework for Obesity Prevention Decision Making; Institute of Medicine

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A multistakeholder strategy to change social norms and behaviors

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multistakeholder strategy

- Use a holistic approach: laws and regulations, modifications of the environment, community-based and communication activities
- Entry point: policy which itself is based on scientific fact
- Methodology must be systemic with a strong coordinating and multidisciplinary organisation combining soft and hard sciences
- Flexible, changing, euristic and joined up approach

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multistakeholder strategy

- Multiple partnerships, not solely financial
- Quality evaluation standards must respond to the questions put forward
- Evaluation must allow feedback and optimise prevention
- Anticipate durability through an appropriation of social norms facilitated by the holistic approach
- Ensure the sharing of experiences at all levels
- Multidisciplinary research must be systematically linked

8

From research to action: complex relations between actors

- The political representatives need to understand the necessity for intervention
  - They ask eperts for evidence of effectiveness and the potential impact of decisions
  - For big health issues evidence is severely lacking

➢ **But, if we wait for all evidence action will not be taken and the phenomenon will grow**

- A gap, often immense, between experimental study and its lasting transposition on a community –or country- wide scale
  - A gap between the expectations on the ground and those of experts

➢ **Necessity of a multidisciplinary approach in a scientific world that is often compartmentalised**

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Multiple actors

- Each one has his own **language** with its complexity
- Their **priorities**
- Their **timescales**
- Need of **Coordinated actions**
- Go beyond medical and scientific **boundaries**

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Key action principles

- Importance to involve local stakeholders in the planning processes, are trusted with sufficient flexibility to adapt actions to local context.
- Messages and actions are solution oriented and motivational for positive behaviour changes and do not stigmatize any culture or people.
- Strategies and support services are sustainable and backed by policies and environmental changes.

The big challenges

- Find a place for joined-up work between politicians, scientists, institutional bodies, economic and grassroots stakeholders, the media and the population.
- Share experiences in all these areas and developed at internation level.

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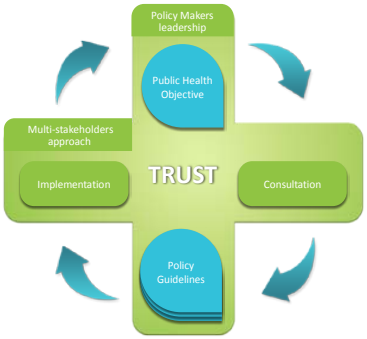
The key to SUCCESS: Synergy



Large Scale Community-Based Programmes to improve healthier habits: EPODE Case study

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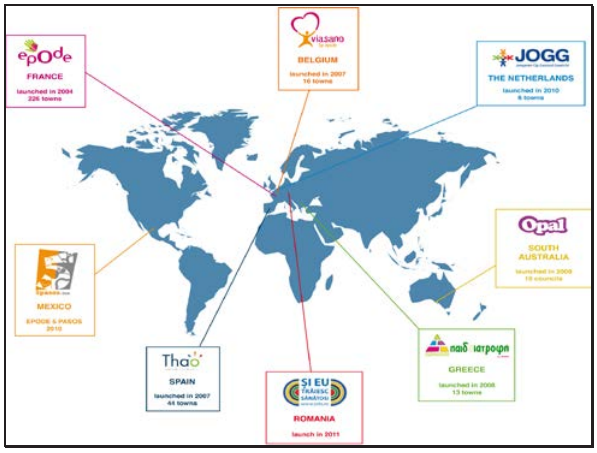
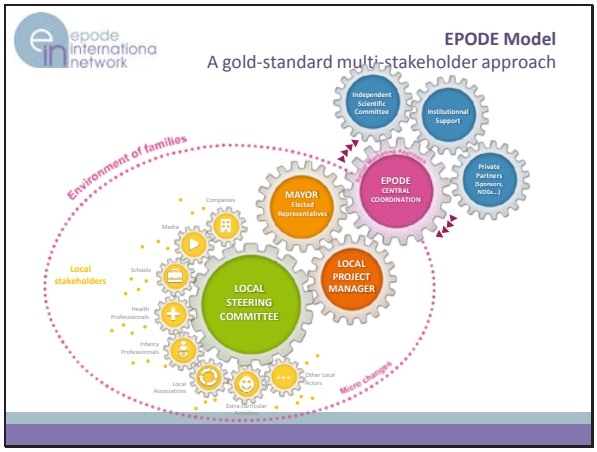
EPODE approach

EPODE is a **coordinated, capacity-building** approach for communities to implement effective and **sustainable strategies** to prevent childhood obesity at the local level


epode
FRANCE
launched in 2004
226 towns
viasano
BELGIUM
launched in 2007
16 towns
JOGG
THE NETHERLANDS
launched in 2010
6 towns
Opal
SOUTH AUSTRALIA
launched in 2009
10 councils
MEXICO
EPODE 5 PASOS
2010
Thao
SPAIN
launched in 2007
44 towns
SI EU
ROMANIA
launch in 2011
παιδ ιατρομη
GREECE
launched in 2008
13 towns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EPODE Model
A gold-standard multi-stakeholder approach
Independent Scientific Committee
Institutionnal Support
Private Partners (Sponsors, NOGs...)
EPODE CENTRAL COORDINATION
MAYOR Elected Representatives
LOCAL PROJECT MANAGER
LOCAL STEERING COMMITTEE
Environment of families
Local stakeholders
Companies
Media
Schools
Health Professionnals
Infancy Professionnals
Local Associations
Other Local Actors
Extra-curricular
Micro changes


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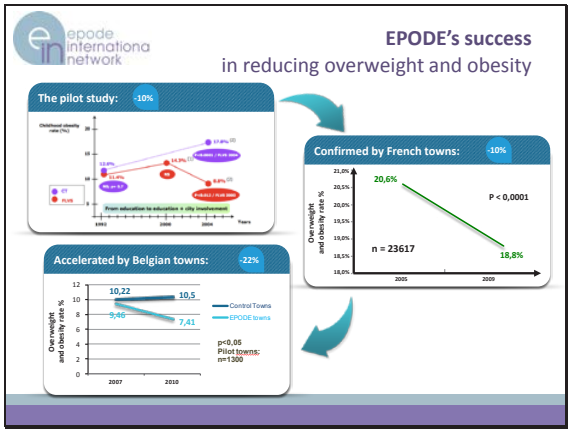
Best practices
in promoting healthier lifestyles
FAMILIES
Schools
Policy makers
Urbanism/ city planning
Health professionals
Early childhood
Associations
Companies, storekeepers, food producers
Extra-curricular
Medias
Other local actors
Health organizations
School cafeteria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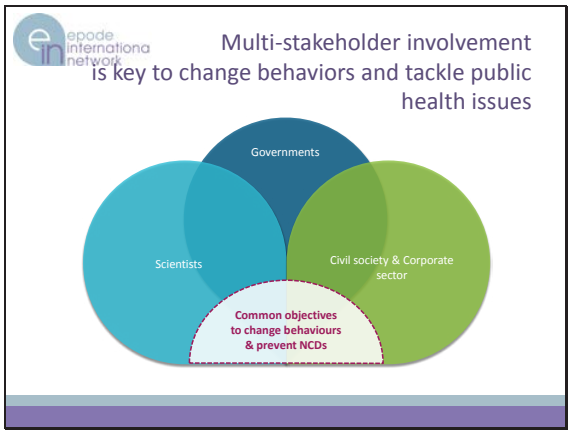
EPODE's success
in reducing overweight and obesity
The pilot study:
-10%
Confirmed by French towns:
-10%
20,6%
P < 0,0001
n = 23617
18,8%
Accelerated by Belgian towns:
-22%
10,22
10,5
9,46
7,41
Control Towns
EPODE towns
p<0,05
Pilot towns:
n=1300


epode international network
EPODE International Network 2013:
26 member programmes across 18 countries
THE NETHERLANDS
BELGIUM
FRANCE
PORTUGAL
POLAND
SLOVAKIA
ROMANIA
SPAIN
GREECE
USA
MEXICO
BRAZIL
CHILE
AUSTRALIA
NEW ZEALAND


epode international network
Multi-stakeholder involvement
is key to change behaviors and tackle public health issues
Governments
Scientists
Civil society & Corporate sector
Common objectives
to change behaviours
& prevent NCDs

Contacts - Websites

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Websites

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www.epode-international-network.com

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Session 2 - Talk 3: Are incentives, behavioral contracts, and behavioral economics-based approaches useful for promoting robust and sustainable nutrition-related behavior change?

Dr. David Just, Cornell University

ARE INCENTIVES, BEHAVIORAL CONTRACTS, AND BEHAVIORAL ECONOMICS-BASED APPROACHES USEFUL FOR PROMOTING ROBUST AND SUSTAINABLE NUTRITION-RELATED BEHAVIOR CHANGE?

David R. Just
May 2013

Definitions

- Incentives: pay individuals to eat healthier
  - SNAP program
  - Employer sponsored health incentives
- Behavioral contract: signed statement of intent to change and specified rewards or penalties
  - Parents/caregiver initiates
- Behavioral Economics: changes in the environment or framing of the choice
  - Apples/fries
  - Forego the side dish

Effectiveness

- Several studies show that each of these methods can be extremely effective in the short term
  - Incentives: Just and Price 2013; Volpp et al. 2008
  - Behavioral Contracts: Volpp et al. 2008; Petrosa 2013; John et al. 2011
  - Behavioral nudges: Wansink, Just and Payne 2009; Riis 2011 (?)
- Two big questions:
  - Can the effects last?
  - How do these interventions perform in relation to the alternatives?
    - Will depend heavily on the goal

Duration

- Long debate over whether incentives can affect lasting change
  - Intrinsic vs. extrinsic motivation (Benabou and Tirole 2003)
  - General consensus: Incentives must be large enough and last long enough to lead to permanent change (e.g., Rey-Biel 2011).
- To date, long term studies of behavioral contracts and incentives have not been promising
  - Volpp et al. 2008 find significant weight loss at 16 weeks, though not different than more traditional weigh loss efforts
    - Both incentives and debit account contracts
  - John et al. 2011 find no significant weight loss after 7 months (with 4 months of debit account contracts).
- There are few studies on the longevity of behavioral interventions – and no general rule
  - Some seem to last as long as the interventions are in place (Wansink, Just and Klinger 2012).
  - Some do not (Goto et al. 2012)

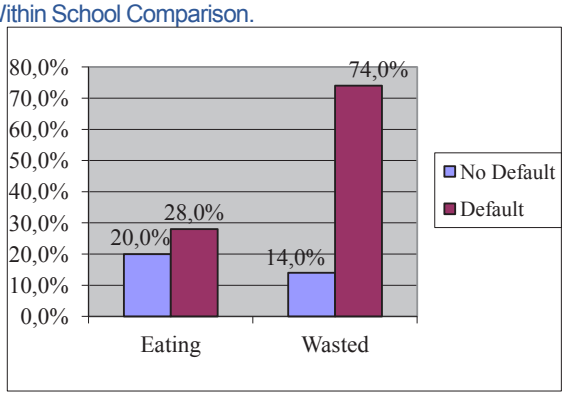
A Case Study

- The new guidelines address availability of healthier foods
  - Requires fruits and veg offered
  - One must be served
- The approach may increase waste
  - How much waste?
  - Are there more cost effective ways to accomplish the goal?
- Three experiments
  - Require Fruits/Vegetables (regulatory)
  - Incentivize Fruits/Vegetables (incentive)
  - Nudge Fruits/Vegetables (behavioral)

Full Study

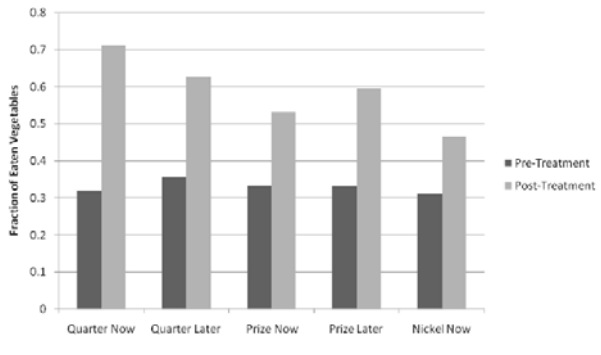
- 15 schools participated
- 3 schools planned to implement a policy of fruits/veggies by default
  - They were willing to implement mid year to allow us to use as an experiment
  - Randomly assigned implementation date
- We compare three schools that implement a fruit/vegetable default midway through the school year to baseline schools
  - 3 to 10 days of data collection in the pre treatment period
  - 3 to 10 days of data collection in the post treatment period

Within School Comparison.



Providing incentives

- Recent research on incentivizing good behavior:
  - Test scores (Angrist and Lavy 2002; Bettinger 2006)
  - Grades (Fryer 2006)
  - Attending school (Kremer, Miguel, and Thornton 2005)
- Split our 15 schools into 5 treatments:
  - Quarter now
  - Quarter later (2 weeks)
  - Prize now (cash equivalent- raffle tickets)
  - Prize later
  - Nickel now



When the Incentive Goes Away

Table 2. Impact of incentives on behavior after incentives are removed.

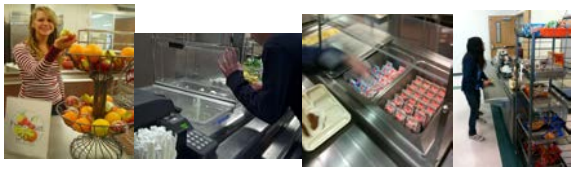
	Ate a serving	Number of servings eaten	Number of servings discarded
Incentive	0.314**	0.261**	-0.203**
	[0.020]	[0.018]	[0.029]
Incentive	0.234**	0.171**	-0.166
	[0.032]	[0.023]	[0.083]
Incentive* (Fraction of school with free lunch)	0.229*	0.259*	-0.108
	[0.084]	[0.097]	[0.194]
Incentive	0.305**	0.251**	-0.199**
	[0.019]	[0.018]	[0.027]
First 2 weeks after	0.102**	0.067*	-0.050
	[0.024]	[0.025]	[0.034]
Next 2 weeks after	0.013	-0.014	0.053
	[0.025]	[0.027]	[0.026]
Mean (pre-period)	0.332	0.457	0.494

Comparing

- Note, the nickel incentive increases consumption by approximately as much as the default
- Providing a default
  - Leads 1 out of 10 additional children to eat a fruit or vegetable per day
  - Costs $1.72 per 10 children per day
  - 60% of the value ended up in the garbage
- Providing the incentive
  - Leads to almost two additional children in ten eating a fruit or vegetable per day
  - Costs $0.45 per 10 children per day
  - Wastage rate declines by one serving per 10 children per day

Smarter Lunchrooms™

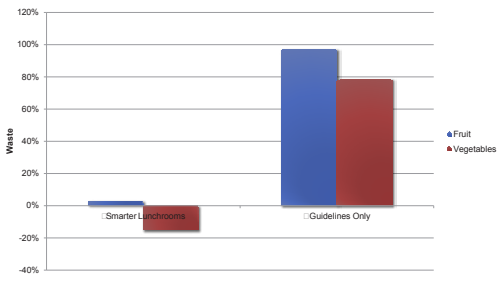
- Smarter Lunchrooms™
  - Move the fruit (102%, Hanks, Just and Wansink 2013)
  - Name the healthier foods (33%, Wansink, Just and Klinger 2012)
  - Signs and verbal prompts
  - Place white milk so it is more visible than other options
- Less than $5 per school--one time fee



The Behavioral Approach: We Have Dealt With Availability, What About Motivation to Eat?

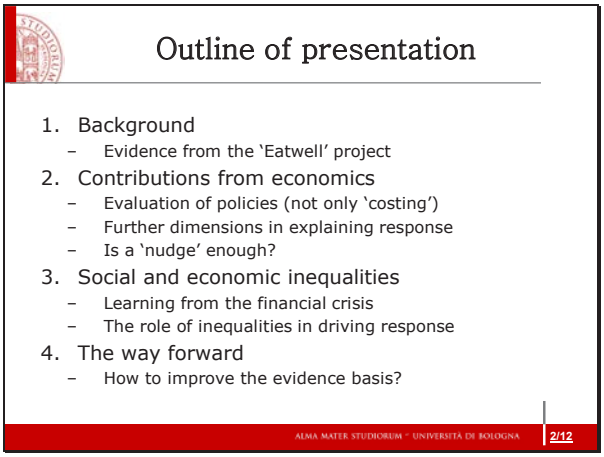
- Now that we have the right foods in place, how can we get kids to eat them?
- Behavioral economic tools can help
  - Children respond to environment
  - Reactance
  - Attribution
    - These last two are the real advantage of behavioral and (positive) incentive approaches

Strategies need not be mutually exclusive



Session 3 - Talk 2: What are the critical policy or organizational factors that result in a sustained positive change in individual eating behavior?

Prof. Mario Mazzocchi, University of Bologna



Eatwell project (2009–2013) in a Nutshell

Evidence base:

- Review past (national-level) interventions in Europe and their evaluations
- Own econometric evaluation of selected policies
- Success stories from private social marketing and transferability
- Survey on public acceptance of alternative policies
- Feedback from stakeholders on draft recommendations

Outputs:

- Recommendations for policy implementation and evaluation

www.eatwellproject.eu

What we did not learn (and why)

- Most existing evidence is partial and only "suggestive"
- A majority of selected evaluations were flawed by:
  - Inappropriate outcome measurements
  - Lack of long-term perspective (sustainability?)
  - Lack of counterfactual perspective (especially environmental dynamics, including market forces)
  - Underestimation of compensating behaviours
- We don't know much about multi-level policies (also considering physical activity), and the scalability of successful community-based interventions (ecological models)

Review of policies in Europe

Policy instrument	No. of cases in the EU (1990 to March 2010)	Reported evidence of positive impact
MEASURES SUPPORTING INFORMED CHOICE (82)		
Advertising control	5	Suggestive (uncertainty on behaviours, long-term)
Public information campaign	38	Suggestive (strong on attitudes, small on behaviours)
Nutrition information on menus	0	Suggestive (compensating behaviours?)
Nutrition education	35	Suggestive (uncertainty about larger scale outcomes)
Nutritional labelling	4	Mixed (strong on awareness for users, mixed results on the dietary outcomes)
MEASURES CHANGING THE MARKET ENVIRONMENT (39)		
Fiscal measures (taxes)	3	Mixed (uncertainty about distributional impacts)
Fiscal measures (subsidies)	0	Suggestive
Regulate meals in schools/working places	14	Suggestive
Nutrition-related standards	1	Suggestive
Government encouragement for reformulation in food sector	9	Suggestive (uncertainty about final outcomes)

Can Economics Help?

Beyond 'traditional' cost-effectiveness studies, economics may help understanding why most policies fail:

- Well-informed consumers still choose unhealthy diets
  - Because of individual factors (taste, discounting…)
  - Because of **social and environmental factors** (which include prices, income shocks, convenience, time pressure…)
- Markets can have a (seemingly?) perverse influence
- Assuming simple one-directional causality may be wrong, endogeneity should be considered (especially in economics-health relationships)
- When there are no experiments, quasi-experimental methods from economics are useful

Substitutions & compensating behaviors

- Policies (& their evaluations) often limits their focus on the targeted behaviour & environment
- **Example 1:** Eatwell study on the French vending machine ban
  - The ban significantly reduces calorie & unhealthy nutrient intakes during the school break
  - There is little change (if any) in the daily intakes
  - Replace foods within VM rather than ban them? Other environments? Multi-level approach? Example: accompanying measures of the SFS
- **Example 2:** Response to taxation & social heterogeneity
  - Taxed foods might be substituted with cheaper foods in the same category
  - Most simulations are unable to account for within category substitution
  - Response is likely to be heterogeneous across different social groups
- **Example 3:** Eatwell study on the Ofcom advertising ban
  - Pre-existing trend dominate on policy impact
  - TV advertising is only one source of information for children

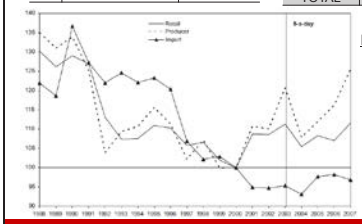
Markets matter: the UK 5-a-day

Portions of fruit & vegetables

Year	Attitude survey: Perceived target	Attitude survey: Reported intake	DEFRA: Estimated intake
2003	4.4	3.4	3.7
2006	4.6	5.2	4.0
2007	4.8	5.6	3.9

Counterfactual-based estimates (2005)

Income	Intake level	Policy impact
1st qrtl	3.3	0.44**
2nd qrtl	3.9	0.41**
3rd qrtl	4.6	0.70**
4th qrtl	5.5	0.25
TOTAL	4.3	0.31**



Prices

Is a 'Nudge' enough?

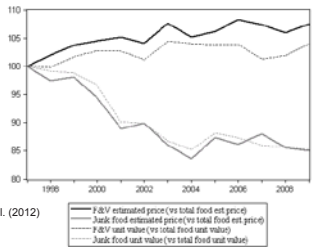
- Not for economists…
  - People choose their diet to maximise utility (which does not correspond to maximise health!)
  - Nudges may correct behavioural failures, but do not address externalities
  - What is the cumulative effect of nudges (including environmental / organizational measures) and market policies?

Social and economic inequalities

- Outcomes of the current financial crisis (preliminary data from Italy)
  - Shift in diet towards cheaper and energy-dense foods (more meat, less fish & fruit & vegetables)
  - Increase in BMI
  - Reduction in physical activity (both work-related and leisure)
  - Food prices grow less, food consumption suffer less, eating out hardly affected
- …but what is the *distribution* of behaviours and outcomes?
- Are the substitution and policy response pattern consistent across societal and economic groups?

Price trends & quality choices

- Trends in HFSS food prices relative to F&V in the UK (1997-2009)



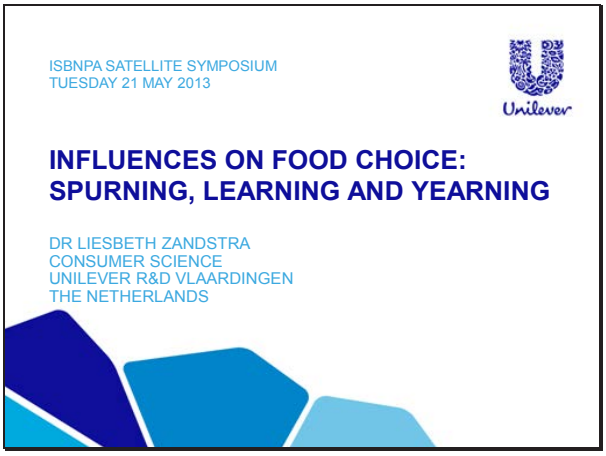
Source: Capacci et al. (2012)

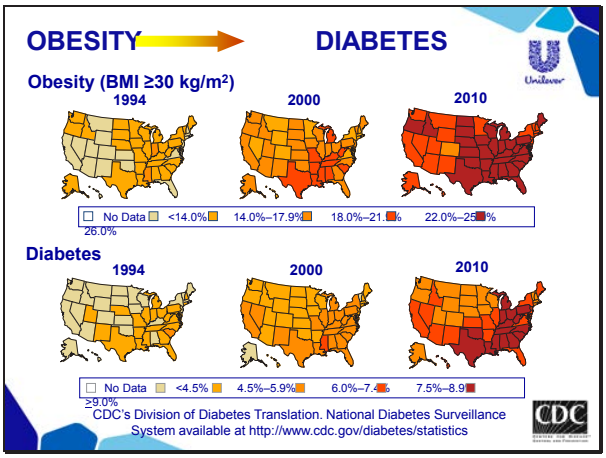
Summary and points for discussion

- An investment in thorough evaluation of the rising number of policies (in Europe) is key to success, and priorities include:
  - Long(er)-term monitoring of outcomes (longitudinal studies)
  - Evaluating multi-level interventions
  - Considering social and economic heterogeneity in response to policies
  - Focusing on compensating and substitution behaviours
  - Accounting for market trends & shocks, and their unequal effects

Session 2 - Talk 1: What are the main driving factors for food choice & their interactions and how can we shift the drivers to potentially alter consumer behavior and preferences (e.g., how to shift food selection to focus on health as well as taste)?

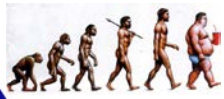
Dr. Liesbeth Zandtra, Unilever





KEY TARGETS FOR DIETARY GUIDANCE AND EFFORT TO IMPROVE DIET QUALITY

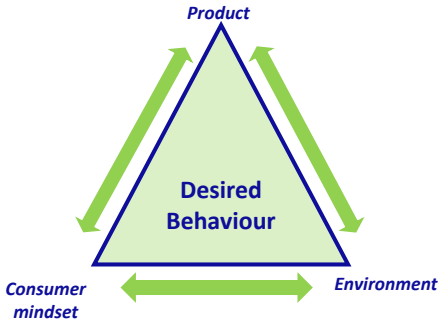
- Energy
- Added sugars
- Saturated fat
- Trans fat
- Sodium
- Fibres



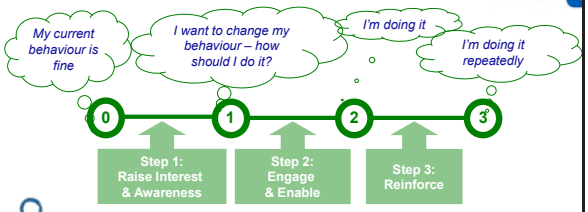
ORIGINAL ARTICLE

A method to improve the nutritional quality of foods and beverages based on dietary recommendations

HEALTHY FOOD CHOICES NEEDS FOCUS ON 3 FRONTS:



THE CONSUMER JOURNEY TO EAT HEALTHY



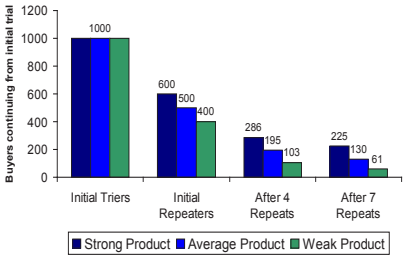
Most challenging:

- Sustained choices of healthy foods, *i.e.* move people from '*I'm doing it*' to '*I'm doing it repeatedly*'
- Consumers "talk health" but "don't walk it"

Gollwitzer & Sheeran (2006)

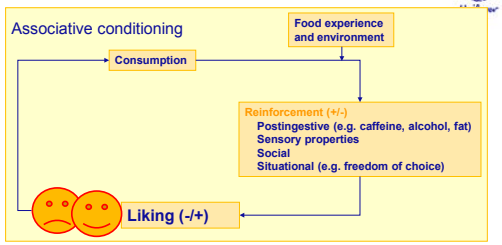
80% OF NEW FOOD PRODUCTS FAIL WITHIN 3 YEARS…

Most tryers and early repeaters do not become sustained buyers, even for strong (market leader branded) products.



ACNielsen BASES; '*Focus to Drive Brand Success*' (2004)

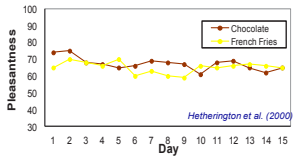
How do changes in liking come about?



- I drink coffee with caffeine
- The caffeine produces pleasant psycho-physiological effects
- I associate the coffee with this effect
- My liking for coffee is enhanced

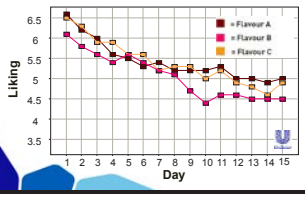
- I go out with friends & have pizza
- The company produces pleasant psychological effects
- I associate the pizza with these effects
- My liking for pizza is enhanced

TWO EXAMPLES OF LIKING OVER REPEATED CONSUMPTION



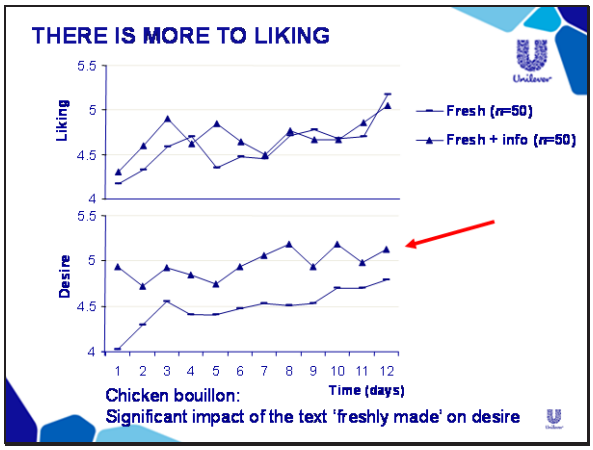
Hetherington et al. (2000)

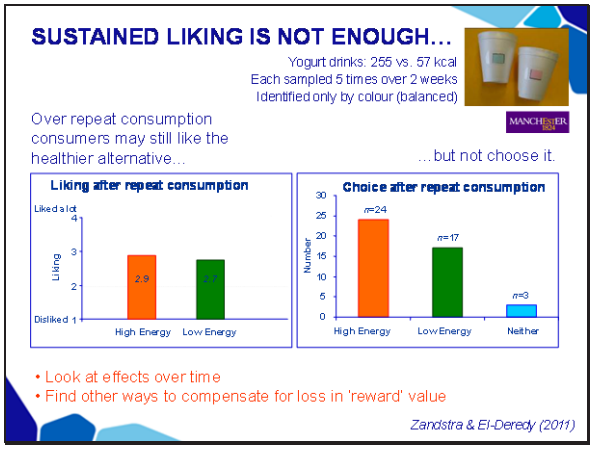
Success in sustained liking...



... and failure...
Liking of a topping over time declined in test market.


INFLUENCES ON LIKING AND FOOD CHOICES
Top down
Previous encounters
Memory
Information (labels)
Expectations
Bottom up


THERE IS MORE TO LIKING
Liking
Desire
Fresh (n=50)
Fresh + info (n=50)
Time (days)
Chicken bouillon:
Significant impact of the text 'freshly made' on desire


SUSTAINED LIKING IS NOT ENOUGH…
Yogurt drinks: 255 vs. 57 kcal
Each sampled 5 times over 2 weeks
Identified only by colour (balanced)
Over repeat consumption consumers may still like the healthier alternative…
…but not choose it.
Liking after repeat consumption
Liked a lot
Disliked
Liking
High Energy
Low Energy
Choice after repeat consumption
Number
n=24
n=17
n=3
High Energy
Low Energy
Neither
• Look at effects over time
• Find other ways to compensate for loss in 'reward' value
Zandstra & El-Deredy (2011)

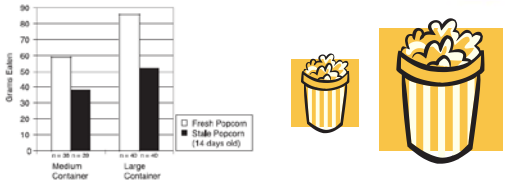
BE CAREFUL…

Labelling may drive table salt use, even to the point of overcompensation.

How best to inform consumers of healthier options, to drive purchase & choice behaviour and minimize counter-active behaviours?

Liem et al. (2012)

SITUATIONAL FACTORS INFLUENCES INTAKE MORE THAN TASTE



Larger packages and containers lead people to eat as much as 45% more, even if they didn't really like the taste.

- Long-term impact vs. other factors?
- Vary portion size with the healthfulness of food:
  - Buy larger packages of healthy foods like fruits and vegetables
  - Buy smaller packages of unhealthy foods

Wansink & Kim (2005)

IMMEDIATE SENSORY EXPERIENCE VS. DELAYED HEALTH AND SUSTAINABILITY BENEFITS

TRADE-OFF:
€ 5 NOW OR € 10 IN 2 WEEKS?

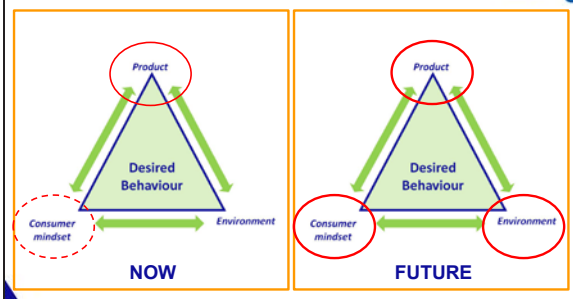
- Long-term benefits will only be preferred when sufficiently high and perceivable. Why and when is this?

Epstein (2010)

THE FUTURE: MULTIDISCIPLINARY APPROACH REQUIRED

- To understand how people behave and make healthy choices
  - Working at the interfaces of:
    - Nutrition
    - Cognitive Psychology
    - Sensory Science
    - Behavioural Economics
    - Neuroscience
- Integrated approach recommended
  - Government, public health organisations, chefs, scientists, health care professionals, industry and consumers

THE FUTURE: HOLISTIC APPROACH REQUIRED



THE FUTURE: BEYOND IMMEDIATE SENSORY EXPERIENCE AND LIKING

- (Purchase/choice) Behaviour rather than intention and measurement of liking of foods
- Top-down approach rather than bottom-up
- Realistic real-life contexts rather than lab contexts
- Long-term rather than short-term
  - Repeated consumption vs. once-off

THANKS

- Dr. Dave Mela (Unilever)
- Prof. Garmt Dijksterhuis (Unilever & University of Copenhagen)

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